CARIS Scenario Load Forecast Details

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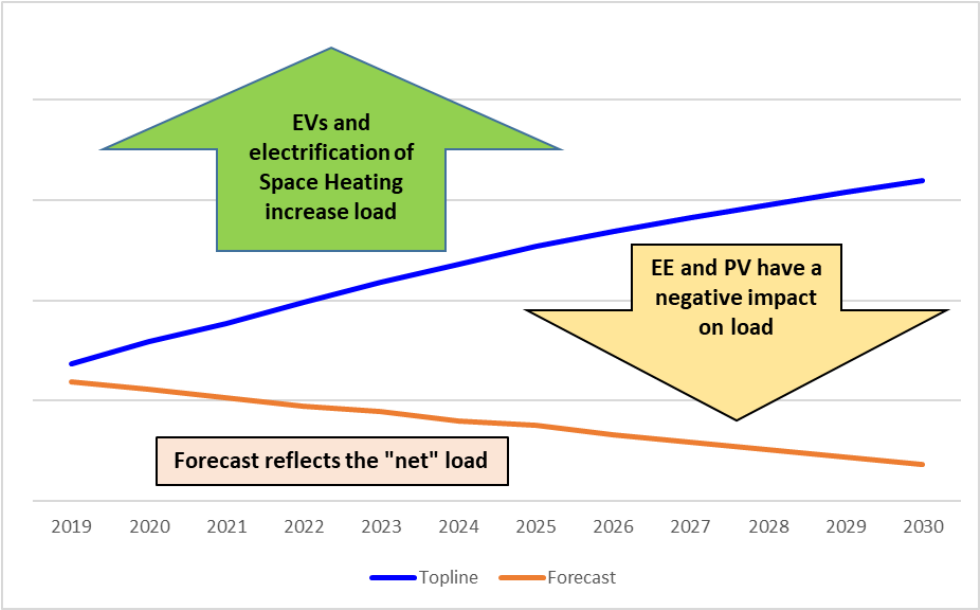
Background

- **At the Oct. 4, 2019 ESPWG, the NYISO presented the methodology and assumptions behind the three CARIS Scenario Load Forecasts**
  - The 'net' Load Forecasts were ostensibly shaped by a combination of impacts due to Energy Efficiency/Codes & Standards (EE), behind-the-meter solar (PV), Electric Vehicles (EV) and electrification of space heating via adoption of Heat Pumps (SpHtg).
  - With the 2019 Gold Book providing the Baseline impact forecasts:
    - The High-Load Forecast assumes accelerated adoption of EV and a 50% increase in electric heating by 2030;
    - The Low-Load Forecast assumes attainment of the higher EE and PV targets stated in the Climate Leadership and Community Protection Act (CLCPA);
    - The '70x30' Load Forecast reflects Scenario forecast reflects higher impacts due to EE, PV, EV and SpHtg.

Scenario Load Forecasts: Methodology

Starting with zonal 'Topline' hypothetical projections, the NYISO layered on separate forecasts of impacts of Electric Vehicles (EV), Space Heating electrification, Energy Efficiency including Codes & Standards (EE), and behind-the-meter Solar (PV) to arrive at the 'net' load forecasts



Agenda

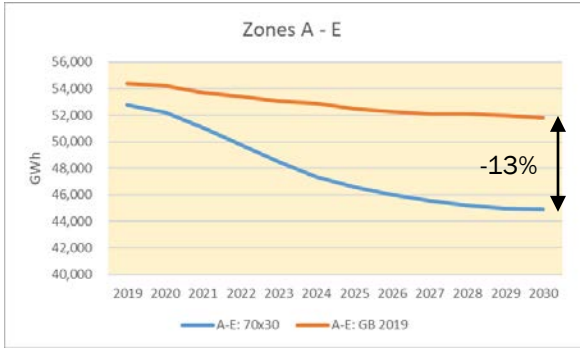
- **Zonal Load Forecasts**
  For each of the 3 scenarios, zonal load forecasts of annual energy are based on zonal shares of impacts due to EE, PV, EV and SpHtg.
- **8,760 Annual Hourly Scenario Load Profile**
  - A new set of initial component 8,760 annual hourly load profiles were developed for CARIS modeling to reflect the main drivers of load discussed above – *i.e.,* separate zonal profiles for SpHtg, EV, Cooling and Non-seasonal load.
  - Starting with 2015 as the base, each component profile was scaled for the forecasted energy usage levels in the horizon years.

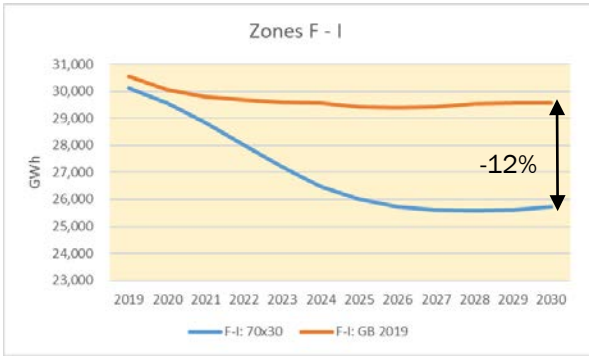
Zonal Load Forecasts: CARIS Scenarios

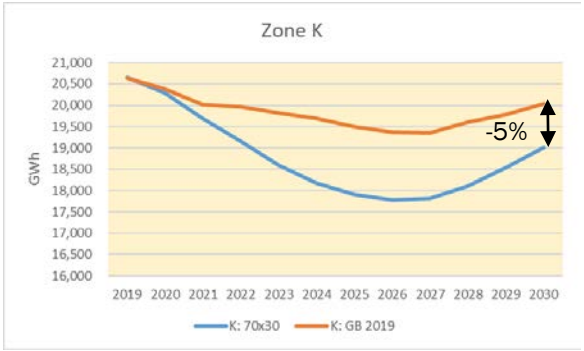
	A	B	C	D	E	F	G	H	I	J	K	NYCA
High Load: 2028	15,246	9,202	15,223	6,324	7,386	11,852	9,090	3,085	6,426	52,102	21,357	157,295
Low Load: 2028	12,363	7,354	12,233	6,001	5,496	9,108	6,820	2,481	5,389	44,122	16,505	127,873
70x30 Scenario: 2030	12,833	7,578	12,654	6,124	5,706	9,670	7,248	2,848	5,951	46,346	19,009	135,969
2019 Gold Book: 2030	14,485	9,684	15,306	5,321	7,023	11,246	9,575	2,848	5,911	52,013	20,037	153,449

The Scenario Forecast figures reflect the impacts obtained from separate zonal forecasts of EE, PV, EV and SpHtg.

Gold Book 2019 vs. 70x30 Scenario







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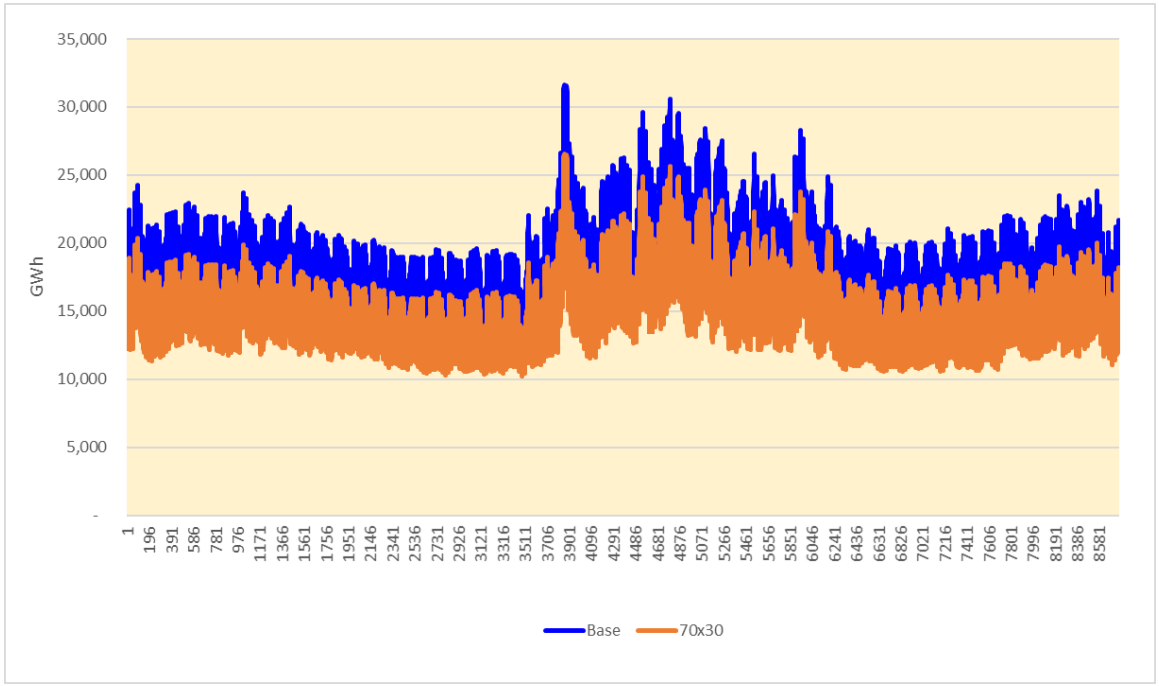
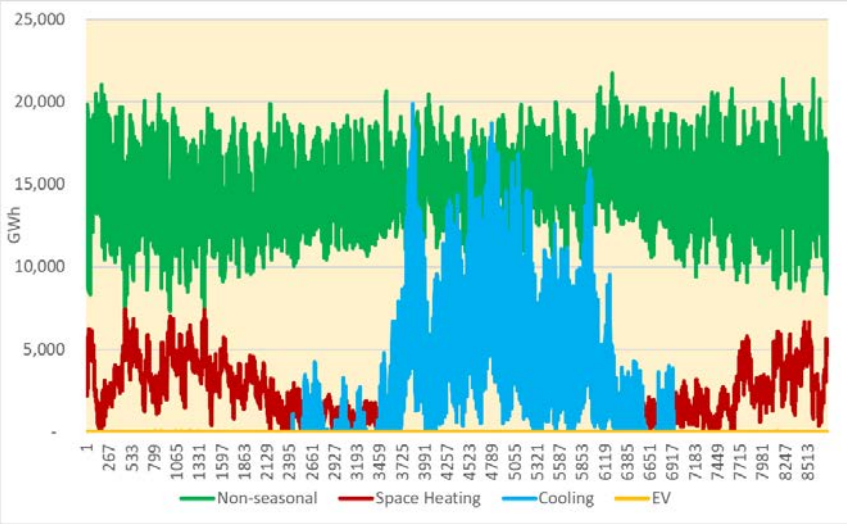
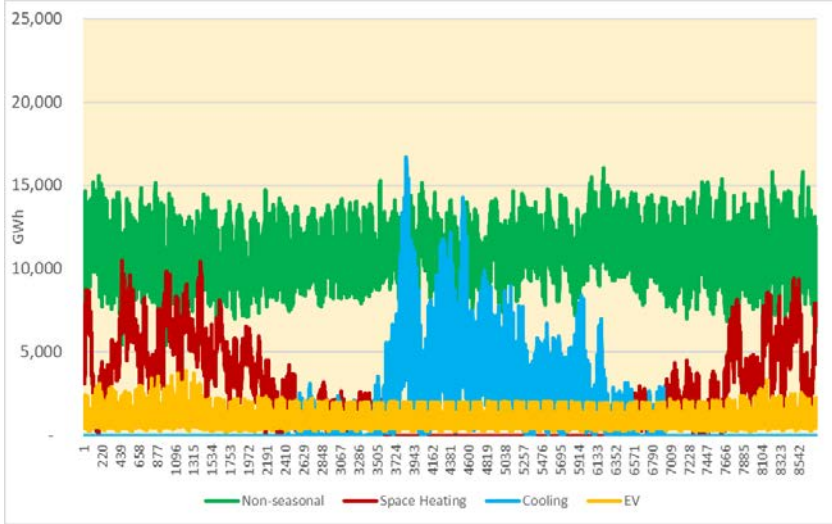
NYCA Scenario Load Profiles: 2015 vs. 2030



- The energy reduction impacts of EE and PV more than offset the rise in usage due to Electrification – i.e. EV and SpHtg;
- Both Winter and Summer peaks decline but ratio of Winter peak to Summer peak to rises.

NYCA Enduse Load Profiles: 2015 vs. 2030

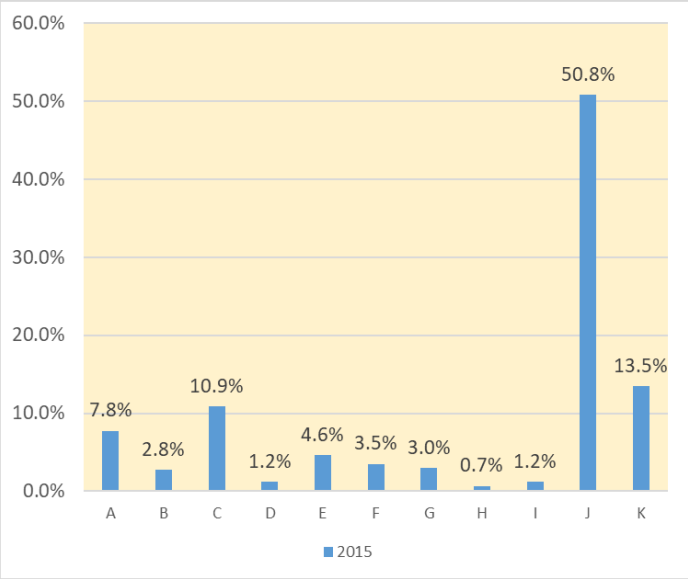




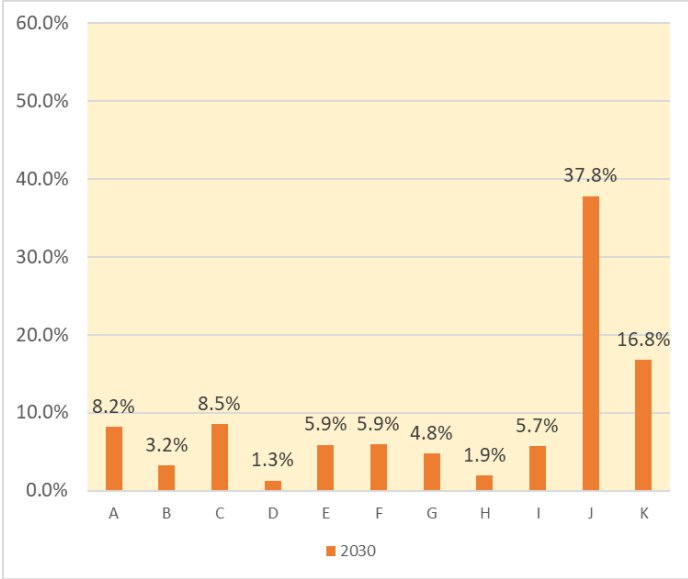
Of the base Annual Energy, Cooling is 10% and Space Heating is 8.5% of load

By 2030, Cooling declines to 8%, Space Heating rises to 14% and EV is 6.5%

Zonal Distribution of NYCA Space Heating Load



The Scenario forecasts assume that GWh used for Space Heating grows by around 50% (~ 6,000 GWh) between 2015 and 2030.



Areas dominated by single-family homes are projected to experience fastest adoption of Heat Pumps.

Questions?

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- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system

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